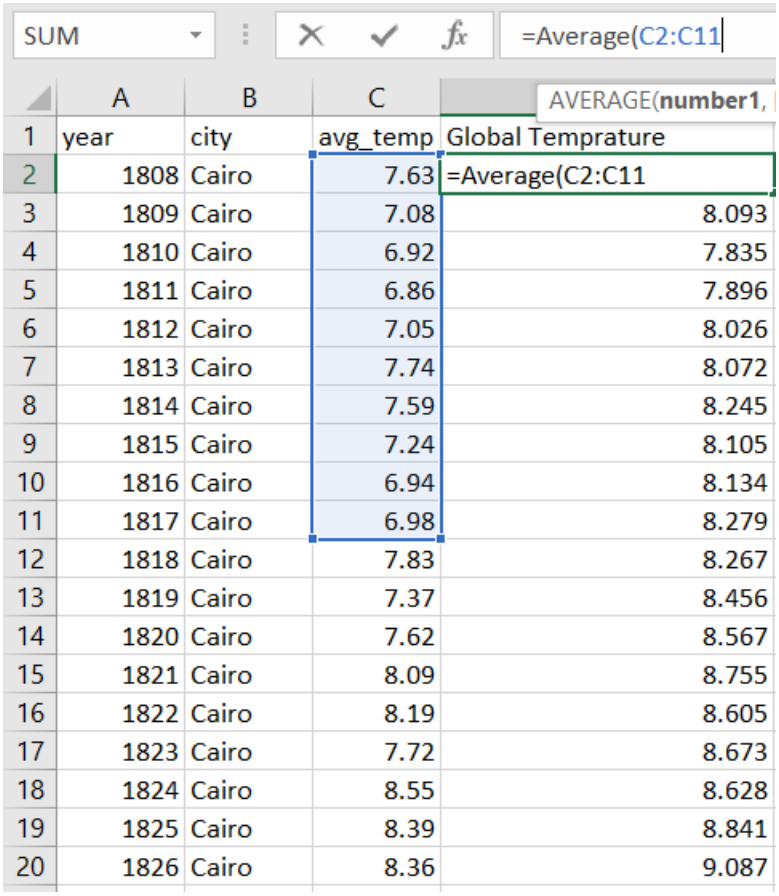
Exploring Weather Trends

1)Select Cairo city data from city_data and global data

```
Select *
FROM city_data
JOIN global_data
ON city_data.year=global_data.year
Where city='Cairo'
```

2)Save the extracted data in “Cairo.csv” file

3)Create the moving average of range 10 years:



	A	B	C	
1	year	city	avg_temp	Global Temprature
2	1808	Cairo	7.63	=Average(C2:C11
3	1809	Cairo	7.08	8.093
4	1810	Cairo	6.92	7.835
5	1811	Cairo	6.86	7.896
6	1812	Cairo	7.05	8.026
7	1813	Cairo	7.74	8.072
8	1814	Cairo	7.59	8.245
9	1815	Cairo	7.24	8.105
10	1816	Cairo	6.94	8.134
11	1817	Cairo	6.98	8.279
12	1818	Cairo	7.83	8.267
13	1819	Cairo	7.37	8.456
14	1820	Cairo	7.62	8.567
15	1821	Cairo	8.09	8.755
16	1822	Cairo	8.19	8.605
17	1823	Cairo	7.72	8.673
18	1824	Cairo	8.55	8.628
19	1825	Cairo	8.39	8.841
20	1826	Cairo	8.36	9.087

The moving mean was calculated using the AVERAGE function of each adjacent 10 years

Years	Global Temprature	Cairo Temprature	Difference
1808-1817	7.203	20.047	12.844
1818-1827	8.093	19.956	11.863
1828-1837	7.835	20.64	12.805
1838-1847	7.896	20.809	12.913
1848-1857	8.026	20.842	12.816
1858-1867	8.072	20.984	12.912
1868-1877	8.245	21.026	12.781
1878-1887	8.105	20.972	12.867
1888-1897	8.134	21.018	12.884
1898-1907	8.279	21.05	12.771
1908-1917	8.267	20.977	12.71
1918-1927	8.456	21.305	12.849
1928-1937	8.567	21.574	13.007
1938-1947	8.755	21.499	12.744
1948-1957	8.605	21.452	12.847
1958-1967	8.673	21.608	12.935
1968-1977	8.628	21.504	12.876
1978-1987	8.841	21.426	12.585
1988-1997	9.087	21.614	12.527
1998-2007	9.546667	22.72833	12.86438
Average			**12.77**

The moving average was calculated using average function in Excel sheet.

The difference=Cairo Temperature-Global temperature in the same year.

4)Draw the data using matplot lib in jupyter note book

```
import matplotlib as plt
%matplotlib inline
import pandas as pd
```

4.1)Read csv file

```
data=pd.read_csv('Cairo.csv')
```

4.2)check the head of the data

```
Data.head()
```

4.3)Plot the graph:

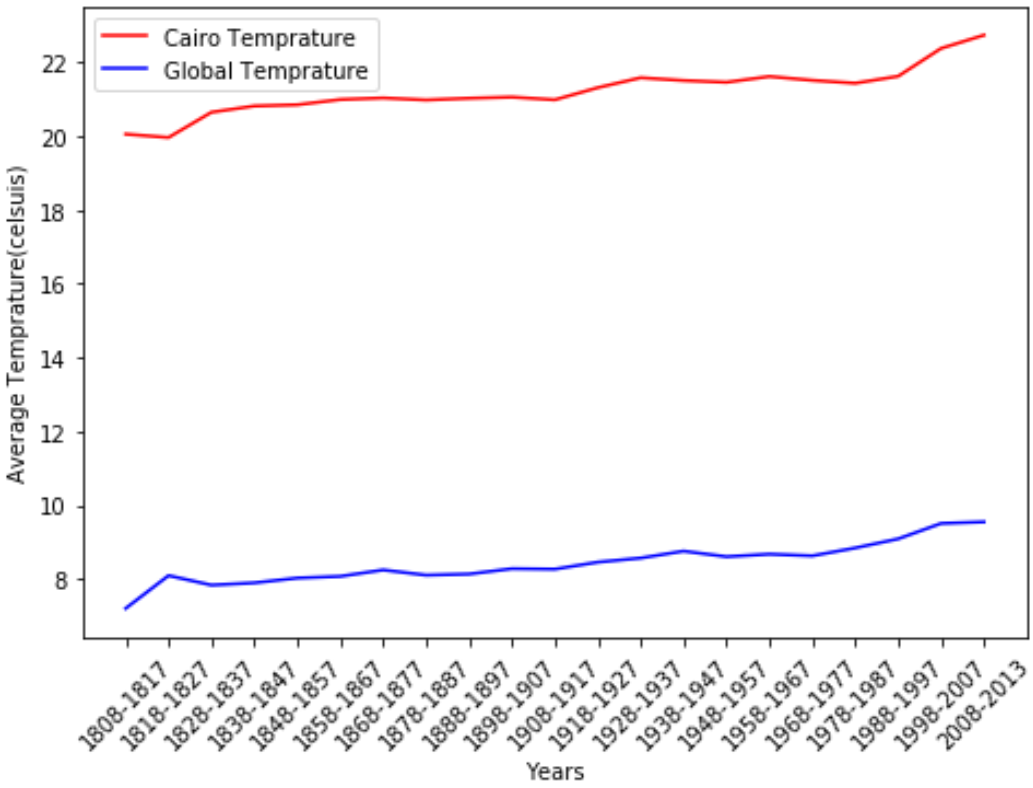
```
fig = plt.pyplot.figure()
ax=fig.add_axes([0,0,1,1])
```

```
plt.pyplot.xticks(rotation=45)

ax.plot(data['Years'].dropna(),data['Cairo Temprature'].dropna(),'r', label="Cairo Temprature")

ax.plot(data['Years'].dropna(), data['Global Temprature'].dropna(),'b', label="Global Temprature")

ax.legend()
```



Comparison between Average Global Temprature and Cairo City average Global temprature

Observation:

1. The MIN cairo temperature was observed in 1818 and it was 11.6 while the MIN global temperature was observed in 1811 and it was 6.86.
2. The MAX cairo temperature was observed in 2010 and it was 23.72 while the MAX global temperature was observed in 2007 and it was 9.73
3. Cairo temperature is higher than the average global temperature and this is due to its geographical location.
4. He average difference between Cairo temperature and global temperature is 12.77 C